

Serial No. 10/566,118
Group Art Unit: 3727

Amendments to the Drawings:

Replacement drawing sheets are submitted herewith for Figures 1, 2a - 2d, 3, and 4a - 4f.

REMARKS

Claims 1, 3-8, and 10-21 are currently pending. Claims 11-21 have been withdrawn due to restriction requirement. Claims 2 and 9 have been cancelled. Claims 1 to 11 have been amended to more clearly describe the invention. Support for these amendments can be found at, for example, pages 5-7 of the specification. No new matter has been added.

Upon suggestion of the Examiner, the specification has been amended to include brief descriptions of Figures 2a to 2d and 4a to 4f. Also upon suggestion of the Examiner, the Drawings have been amended and replacement sheets are submitted herewith. Features 17 and 18 have been introduced into Figure 2b, and feature 20A into Figure 3. The drawings have also been amended to remove “figure 2” from drawing sheet 2/4 and “figure 4” from drawing sheets 3/4 and 4/4 . No new matter has been added.

35 U.S.C. § 112 Claim Rejection

Claims 9 -11 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. The Action states that the phrase “or polyurethane” allegedly lacks antecedent basis. Although Applicant does not necessarily agree with this rejection, claims 1, 10 and 11 have been amended in a manner Applicant believes renders this rejection moot. In particular, claim 1 has been amended to include the phrase “polyurethane gel” and claims 10 and 11 have been amended to include the phrase “polyurethane gel” and to remove the phrase “or polyurethane material.” Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 9 -11 under 35 U.S.C. § 112.

35 U.S.C. § 103 Claim Rejections

Claims 1-11 have been rejected under 35 U.S.C. § 103(a) as allegedly being obvious over WO 03/001943 (hereafter “’943”) in view of US Publication No. 2004/0025275 (hereafter “’275”). Applicant respectfully traverses this rejection because the claimed invention is neither taught nor suggested by the references either individually or in combination.

The Action alleges that ‘943 discloses a toothbrush head (30) comprising a rigid frame (36) supporting a mass of elastomeric material (60) in which bristles are embedded. The Action further alleges that ‘275 discloses use of a gel material (28) for a similar purpose, and

that it would be obvious to replace the elastomer of '943 with the gel of '275. The Action also refers to the conclusion of the present international search report.

Conventionally, toothbrush bristles are mounted in the hard plastic structure of the toothbrush head. There have been attempts to mount bristles in flexible pads for example to enable the bristles to adapt better to tooth profiles. The present invention addresses the problem encountered in attempts to fix the ends of toothbrush bristles which are typically made of nylon into a flexible elastic pad in a toothbrush head (specification, page 1, last paragraph). The problem is that nylon bristles do not bond well to typical injectable thermoplastic elastomer ("TPE") materials, so an intermediate plastic holder is used, which bonds to both nylon and TPE. The present invention has unexpectedly discovered that the nylon of toothbrush bristles bonds strongly to polyurethane gel materials. This is evidenced by the pull strength data in the present application (*id.*, page 17).

'943 discloses a toothbrush head in which the flexible pad (60) is described in very general terms e.g. "flexible", "trampoline like", and "resilient". The only specific materials suggested for pad (60) are silicon rubber or other synthetic rubber ('943, page 6, line 6-9). No indication is given in '943 as to how the bristles might be fixed into the pad (60) or how problems in achieving a strong bond might be overcome.

'275 discloses a toothbrush with a flexible head in which cleaning elements (20) are mounted on segments (16) and further cleaning elements (30) are mounted on "shelf-like protrusions" (28) ('275, paragraphs [0005] and [0013]). The segments (16) and protrusions (28) are made of a hard plastic material, are covered with an elastomeric material (28) (*id.*, paragraph [0016]), and are linked flexibly together.

It is clear from '275 that the cleaning elements (20) and (30) are mounted in the conventional manner set in the hard plastic material of the toothbrush head. In '275 the flexible mounting of the bristles is provided by the flexible linking between segment and segment (*id.*, paragraph [0005]) and between segments and the protrusions (*id.*, paragraph [0019]). The elastomer material is merely provided as a cover over the plastic material. Therefore in '275 the bristles are not actually mounted in the elastomer material, whether or not it contains a gel. The bristles (20) and (30) are non-flexibly mounted in the segments and protrusions, and it is the segments and protrusions which are flexible.

Although '275 states that "the elastomer material.....could additionally include, for example, a soft gel material to which the cleaning elements 30 are directly mounted" (*id.*, paragraph [0026]), this disclosure of gels is extremely general. There is nothing in '275 that

would suggest the use of the presently claimed *polyurethane gels*. Such polyurethane gels are shown in the present application to be unexpectedly advantageous. Therefore ‘275 does not disclose or suggest the flexible mounting of toothbrush bristles in a gel material as presently claimed.

Further, ‘943 discloses that its pad (60) is “trampoline” like, and suggests natural or silicone rubber for the pad. This contrasts with the choice of *polyurethane gel* in the present invention. The present description states:

Gel materials may be distinguished from elastomers by the visco-elastic character of gels, i.e. though a gel deforms resiliently under pressure or tension, on release of the pressure or tension a gel does not immediately bounce back into its original shape like an elastomer does but returns to its original shape more slowly

(specification, page 3). Consequently, as the gels of the present invention do not have the immediate bounce-back property of elastomers. Such an immediate bounce-back property is self-evidently required by a “trampoline like” pad as described in ‘943, and exemplified by elastomers such as natural or silicone rubber. Therefore ‘943 points away from the present use of a gel material.

‘943 uses pad materials which point away from the present polyurethane gels. ‘943 does not even envisage the nylon bristle – pad material problem addressed and solved by the present invention. ‘275 does not mount its bristles in an elastic material, achieves its bristle flexible mounting in an entirely different manner, and uses its gel for an entirely different purpose to the present invention.

Claims 1-11 have also been rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Moskovich US-A-2005/0188487 (hereafter “‘487”) in view of ‘275. Applicant respectfully traverses this rejection because the claimed invention is neither taught nor suggested by the references either individually or in combination.

The Action alleges that ‘487 discloses a toothbrush head (14) comprising a rigid frame (20) within which is a mass of elastomeric material (22) in which bristles are embedded. The Action further alleges that a choice of an alternative material would be obvious for the same reasoning as previously stated.

‘487 discloses a toothbrush head similar to that of ‘943 discussed above, in which bristles or other cleaning elements are mounted in an elastic membrane (22). ‘487 describes its membrane as “elastomeric” (‘487, paragraph [0059]) and “trampoline like”

(*id.*, paragraph [0023]) i.e. similar to ‘487 discussed above and similarly pointing away from the present visco-elastic gel materials. ‘487 gives no specific indication of how the bristles might be fixed into the membrane (22), but it does suggest that:

where bristles are used, the bristles could be mounted to tuft blocks or sections by extending through suitable openings in the tuft blocks so that the base of the bristles is mounted within or below the tuft block and below membrane 22

(*id.*, paragraph [0043]). Such “tuft blocks” appear to be technically the same as the above-mentioned intermediate plastic holders used to fix nylon bristles into TPE. Therefore ‘487 envisages the problem of fixing bristles into an elastic membrane but does not suggest the present solution of using a polyurethane gel as a support for bristles because of the strong bond achieved.

As explained above, ‘275 uses its elastomeric material and gel material for a completely different purpose to the present invention and there is nothing in ‘275 to suggest using a gel, specifically a polyurethane gel, in place of the elastic membrane (22) of ‘487, or of the unexpected advantages of a polyurethane gel.

The Action also refers to the conclusion of the international search report and U.S. Patent No. 2,706,825 (“Blakeman”). Although the extent to which these documents are relied upon by the Action is unclear, Applicant submits that these documents do not impact the patentability of the present invention. Initially, Applicant notes that the conclusions of the international search report is not prior art to the present application. Furthermore, that search was carried out by the European Patent Office (“EPO”), and the EPO has now issued the corresponding European patent EP 1 653 828 B1 with claims equivalent to the present claims on file, and which was not opposed. With respect to the Action’s reference to Blakeman, Applicant submits that Blakeman merely discloses a toothbrush having its bristles fixed into a rubber base (20), and is technically the same as WO03/001943.

Accordingly, for at least these reasons, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. § 103.

Conclusion

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In view of the foregoing, favorable reconsideration of claims 1, 2-8, 10, and 11 and an indication of allowability of all pending claims is requested respectfully. Should the Examiner have any questions or wish to discuss any aspect of this case, the Examiner is encouraged to call the undersigned attorney at the number below.

Respectfully submitted,

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